

Scatterplots on the TI-89

The TI-89 can take data points and make a scatterplot. You can then use a *regression*, which will provide you with a function that matches your data.

Begin at the HOME screen. To begin entering your data, hit the **APPS** button. Press 6 to enter the *Data/Matrix Editor*. Press 3 to create a New set of data. Scroll down to the Variable box and enter in the name skittle1.

A blank data screen appears, resembling a table. The *c1* field is your independent variable (x value), and the *c2* field is the dependent variable (y value). Start with *c1* and enter in the Trial # for each of your trials. When you're done, scroll up to the top and put in the population (number of Skittles) in *c2*.

After you're done entering your data, we need to *define the plot*. Hit F2, and then make sure *Plot 1* is highlighted and hit F1. The plot definition window appears. Scroll down to *x* and enter in *c1*. Type in *c2* for *y*. Hit Enter, and the Plot 1 that was highlighted before should now show a scatterplot icon and labeled *x:c1 y:c2*. Hit enter to return to the data editor.

Defining the plot allows the scatterplot to be graphed. However, we also want a function that corresponds to the data. Look at the shape of your function!

What kind of function does your graph appear to be?

To find an equation for your data, hit F5 to get the Calculate window. For *Calculation Type*, hit the \rightarrow button and choose a type of *Reg* where you choose your graph type. You may choose a linear function with LinReg, an Exponential function with ExpReg, a Quadratic function with QuadReg, a Power function with PowerReg, a natural log function with LnReg, a Cubic function with CubicReg, Quartic function with QuarticReg, and finally a Sine function with SinReg. Like before, enter in *c1* for *x* and *c2* for *y*. In the *Store RegEQ* box, hit the \rightarrow button and choose *y1(x)*. This will put the equation into the *Y=* screen for you. Hit Enter. It will display the equation of the function that matches your data.

Now, let's make sure that the scatterplot and function were put into the *Y=* window. Hit Diamond-F1 to enter the *Y=* window. There should be entries for both Plot 1 and *y1*. Hit F2 and scroll down to *9: ZoomData* to zoom into your data. Hit enter, and the TI-89 will display the scatterplot, and then graph the function. The line that appears (the function) should closely match the scatterplot. Look to see if you get a correlation coefficient *r*. If you do, you can find out how well the model fits the data. The better the model fits the data, the closer *r* is to |1|. If *r* is positive, the variables have a positive correlation. If *r* is negative, the variables have a negative correlation.

If you need to access your data again, go to **APPS**, *Data/Matrix Editor*, and Open.